

CLAIMS

1. An isolation damper pulley attached to a crankshaft of an engine, comprising:
 - a damper unit including a hub having a mounting hole to said crankshaft and an annular mass body attached to an outside cylindrical portion provided to said hub via a first elastic member;
 - a pulley unit including a cylindrical portion, in an outer circumferential portion of which a pulley groove is formed and that is disposed outside said annular mass body, and a cover portion extending from one axial-directional end of said cylindrical portion in a central direction;
 - a second elastic member whose one end is fixed to a side of said damper unit, whose other end is fixed to a side of said pulley unit, and to which a pre-compression is applied axially; and
 - a pressing unit pressing axially said pulley unit and applying an axial-directional pre-compression to said second elastic member,wherein a fixing position of said pressing unit is capable of being adjusted axially.

2. An isolation damper pulley attached to a crankshaft of an engine, comprising:

a damper unit including a hub having a mounting hole to said crankshaft, a first fitting portion provided to said hub so as to be concentric with a center axis of said mounting hole, and an annular mass body attached to an outside cylindrical portion provided to said hub via a first elastic member;

a pulley unit including a cylindrical portion, in an outer circumferential portion of which a pulley groove is formed and which is disposed outside said annular mass body, and a cover portion extending from one axial-directional end of said cylindrical portion in a central direction;

a second elastic member whose one end is fixed to a side of said damper unit, whose other end is fixed to a side of said pulley unit, and to which a pre-compression is applied axially; and

a pressing unit having a third fitting portion so as to be concentric with said center axis, pressing axially said pulley unit, and applying an axial-directional pre-compression to said second elastic member,

wherein said third fitting portion is axially press-inserted into said first fitting portion so as to be fitted coaxially, and said first fitting portion has an adjustment margin capable of adjusting axially a fitting position of said third fitting portion.

3. An isolation damper pulley attached to a crankshaft of an engine, comprising:

a damper unit including a hub having a mounting hole to said crankshaft, a first fitting portion provided to said hub so as to be concentric with a center axis of said mounting hole, and an annular mass body attached to an outside cylindrical portion provided to said hub via a first elastic member;

a pulley unit including a cylindrical portion, in outer circumferential portion of which a pulley groove is formed and which is disposed outside said annular mass body, and a cover portion extending from one axial-directional end of said cylindrical portion in a central direction and supporting one axial-directional end of a second elastic member;

a supporting unit having a second fitting portion concentric with said center axis and supporting the other axial-directional end of said second elastic member; and

a pressing unit having a third fitting portion concentric with said center axis and pressing axially said cover portion to apply axially a pre-compression to said second elastic member,

wherein said second fitting portion and said third fitting portion are axially press-inserted into each other so as to be fitted coaxially, and an inner fitting portion of said second fitting portion and said third fitting portion is axially press-inserted into said first fitting portion so as to be fitted coaxially.

4. The isolation damper pulley according to claim 3, wherein said first fitting portion, said second fitting portion, and said third fitting portion are each formed in a cylindrical shape.

5. The isolation damper pulley according to claim 3, wherein an outer circumferential surface of said third fitting portion is fitted in an inner circumferential surface of said second fitting portion, and an inner circumferential surface of said third fitting portion is fitted in an outer circumferential surface of said first fitting portion.

6. An isolation damper pulley attached to a crankshaft of an engine, comprising:

a damper unit including a hub having a mounting hole to said crankshaft, a first fitting portion provided to said hub so as to be concentric with a center axis of said mounting hole, and an annular mass body attached to an outside cylindrical portion provided to said hub via a first elastic member;

a pulley unit including a cylindrical portion, in an outer circumferential portion of which a pulley groove is formed and which is disposed outside said annular mass body, and a cover portion extending from one axial-directional end of said cylindrical portion in a central direction and supporting one axial-directional end of a second elastic member;

a supporting unit having a second fitting portion concentric with said center axis and supporting the other axial-directional end of said second elastic member; and

a pressing unit having a third fitting portion concentric with said center axis and pressing axially said cover portion to apply an axial-directional pre-compression to said second elastic member,

wherein said second fitting portion and said third fitting portion are press-inserted into said first fitting portion without being fitted to each other, thereby being fitted to said first fitting portion.

7. A manufacturing method for an isolation damper pulley attached to a crankshaft of an engine, the method comprising the steps of:

preparing a damper unit including a hub having a mounting hole to said crankshaft, a first fitting portion provided to said hub concentric with a center axis of said mounting hole, and an annular mass body attached to an outside cylindrical portion provided to said hub via a first elastic member;

preparing an isolation pulley unit including a pulley portion, in an outer circumferential portion of which a pulley groove is formed and which is disposed outside said annular mass body, a cover portion extending from one axial-directional end of said pulley portion and supporting one axial-directional end of a second elastic member, and a supporting means provided with a second fitting portion concentric with said first fitting portion and supporting the other axial-directional end of said second elastic member;

press-inserting axially a third fitting portion of a pressing means into said second fitting portion, the pressing means having a pressing portion opposed to said cover portion and said third fitting portion concentric with said center axis, and fitting coaxially said second fitting portion and said third fitting portion under a state of applying axially a predetermined pre-compression to said second elastic member by said supporting means and said pressing means; and

press-inserting axially an inner one of said second fitting portion and said third fitting portion into said first fitting portion and fitting coaxially said inner one to said first fitting portion at a position where an axial-directional isolation length between an end surface of said damper unit and said pulley groove becomes a predetermined length.

8. A manufacturing method for an isolation damper pulley attaching to a crankshaft of an engine, the method comprising the steps of:

preparing a damper unit including a hub having a mounting hole to said crankshaft, a first fitting portion provided to said hub so as to be concentric with a center axis of said mounting hole, and an annular mass body attached to an outside cylindrical portion provided to said hub via a first elastic member;

preparing an isolation pulley unit including a pulley portion, in an outer circumferential portion of which a pulley groove is formed and which is disposed outside said annular mass body, a cover portion extending from one axial-directional end of said pulley portion in a central direction and supporting one axial-directional end of a second elastic member, and a supporting means provided with a second fitting portion concentric with said first fitting portion and supporting the other axial-directional end of said second elastic member;

press-inserting axially said second fitting portion into said first fitting portion and fitting coaxially said second fitting portion to said first fitting portion; and

press-inserting axially, into said first fitting portion, a pressing means having a pressing portion opposed to said cover portion and a third fitting portion concentric with said center axis, applying axially a predetermined pre-compression to said second elastic member by said supporting means and said pressing means, and fitting coaxially said third fitting portion to said first fitting portion at a position where an axial-directional isolation length between an end surface of said damper unit and said pulley groove becomes a predetermined length.